

Segment Completion Report

FILE

State of TEXAS

Project No. F-2-R-6

Name: Fisheries Investigations and Surveys of
the Waters of Region 6-B.

Job No. B-20

Title: Resurvey of the Waters of Region 6-B.

Period Covered:

February 1, 1958 - January 31, 1959

Abstract:

A resurvey of Lake Inks, Granite Shoals, Buchanan, Marble Falls, and Belton as well as the San Saba River was carried out during 1958. Fifteen seine and 25 gill net collections were made on Lake Inks. The fish population was found to be substantially the same as in the 1957 collections. A slight increase in the gizzard shad population was noted although the majority of shad netted were small making up only eight percent of the total weight taken.

Two rotenone and five net sets on Lake Granite Shoals showed population figures similar to the 1957 survey although a slight increase in total weight of rough fish species was noted. Gizzard shad continued at a moderate population level and at present do not constitute a problem to good fishing. The overabundance of Myriophyllum sp. continues to be a problem as much of the lake is closed to shore and boat fishing by this aquatic weed.

Too few nets were set on Lake Buchanan for accurate comparison with previous collection data. Rough fish species were found to constitute 60 percent of total numbers and 66 percent of total weight in the collections. Gizzard shad accounted for slightly under 42 percent of total numbers taken and channel catfish made up the bulk of the game fish population.

Lake Marble Falls was stocked with 250,000 largemouth bass fry in April but attempts to pick up fingerlings or juveniles in October and November were discouraging. The results of net and rotenone collections continued to indicate a limited fish population with a predominance of rough fish. Channel catfish were found to be the dominant game fish but few of desirable size were taken. The other game species including white crappie, white bass and largemouth black bass are apparently at minimal levels.

Thirty experimental net sets and eight seine collections were made on Lake Belton during the year. A good game fish population was found to be present although a significant drop in average weight of individual crappie was noted. In an attempt to harvest more of the surplus small crappie, the bag and possession limit on crappie was raised for Lake Belton. Gizzard shad showed a continued increase in numbers and total weight.

The fish population in the San Saba River apparently suffered with the floods of 1957 as few game fish were found in the net collections. Rough fish, predominantly longnose gar, made up over 90 percent of the total weight of fish taken from the river.

No management practices were considered practical until a barrier to prevent re-entry of rough fish from the Colorado River is constructed.

Objectives:

To determine the present status of waters and fish populations which have been previously surveyed in Project F-2-R.

Procedure:

Collections of fish samples were obtained principally through the use of small mesh seines and standard experimental gill nets. Random fish collections were made from all waters resurveyed except the Inks Lake collections which were made at stations selected in the initial basic survey.

Seined specimens were preserved in 10 percent formalin solution and taken to the laboratory for identification. Netted specimens were weighed, measured and checked for gonadal development in the field.

Because of an apparent decline in the size of crappie taken from Lake Belton, a limited creel census was undertaken to determine the size of crappie caught by anglers from the lake.

Physical changes occurring in the surveyed waters including siltation, vegetation, water quality, and significant changes in course of the rivers were noted during the resurvey period.

Findings:

Inks Lake

Fifteen seine collections and 23 gill net sets were made on Inks Lake during the year. Eight pre-determined netting stations were checked in August and November and seven of the eight stations were worked in April of 1958.

Little change was noted in relative abundance of species when 1958 and 1957 data were compared. Rough fish including longnose gar, gizzard shad, smallmouth buffalo, river carpsucker, carp and drum made up 63 percent of the total numbers and approximately 78 percent of total weight in the 1957 collections compared with 71 percent of numbers and 71 percent of weight in the 1958 collections.

Gizzard shad show the most significant change accounting for 56 percent of total fish taken in the 1958 collections compared with 45 percent in 1957. This increase was expected as a build-up of the shad population occurs following the decline brought about by the 1956 selective kill. However, most shad are of a size which could be used as forage by other species and account for less than eight percent of the total weight taken.

Netting data shows channel catfish to be the most abundant of the game species accounting for approximately 16 percent of netted specimens and 20 percent of the total weight. Other game species including white bass, white crappie and sunfish show little change in relative abundance. (Table 1).

Although too few white crappie were taken for definite conclusions, it is interesting that the average weight for all crappie taken was five ounces in the 1958 collections compared with three ounces in the 1957 collections.

The effect of the 1957 floods were still apparent as submerged vegetation, which was almost eliminated by swift currents and turbid waters, has not reached its former abundance. Fertility remained high during the year. The lake maintained a heavy unicellular algae bloom from the nutrients added by the large amounts of organic materials washed into the lake, with the high water in 1957, and the run-off from above average rainfall in the spring of 1958.

Seine collections indicate a limited spawn of largemouth bass. Of the 1,052 fish taken in seines only four largemouth and one spotted bass were collected. Over 100,000 black bass fry were stocked in Inks Lake in the spring of 1958. The stocked fish in addition to the natural spawn did not show significantly in the seine collections. The absence of largemouth bass in the seine collections may be correlated with the reduction in cover at the seining stations. The fingerling and young-of-the-year bass are assumed to be more numerous in other areas of the lake where cover is available. A strict comparison of numbers taken prior to the floods, when vegetation at the seining stations was plentiful and during 1958 when cover was scarce, is not possible.

Camp operators and sportsmen complain of a slump in largemouth bass fishing since the high water and apparently there is some justification for the complaints. Only 12 largemouth bass have been collected from 33 seine collections and 31 gill net sets made since the flood waters of 1957 receded. Of these, nine were collected during the 1958 resurvey period. Further stocking of this lake will be attempted this spring, and further studies will be made to ascertain the results of the stocking program.

Granite Shoals Lake

Five net and two rotenone collections were made during the year. All net samples were taken on October 28 and 29, and the rotenone collections were made on November 19, 1959. Table 2 presents the results of the net collections.

Too few net collections were made for accurate comparisons with previous data. The data show 56 percent of total numbers and 74 percent of total weight of fish taken to be rough species. Smallmouth buffalo made up over 56 percent of the total weight of the netted fish. As in previous surveys, gizzard shad comprise only a small percentage of total numbers and weight, and at present apparently are not a problem.

From reports of camp operators and sportsmen, fishing on Lake Granite Shoals was good, and the lake seems to be popular with sportsmen. Nutrient materials provided by the floods of the previous year were beneficial as the lake retained a heavy algae bloom throughout the year. The spawn of largemouth bass was apparently successful as thousands of fingerlings were observed in the shallows during the spring months, and 12 largemouth bass, considered young-of-the-year, were found in the November rotenone collection.

A small slough, covering one-third of a surface acre with an average depth of eight feet, was treated with five percent rotenone powder at a rate of 3 lbs/acre foot. The initial treatment did not produce expected results and a larger dosage was applied. Except for large numbers of small sunfish, cyprinids and log perch, few fish were taken in the rotenone sample. Seven channel catfish, one yellow catfish, 12 largemouth bass, and 14 gizzard shad were collected, and of these only one - a channel catfish - was of desirable size.

Aquatic vegetation in the form of Myriophyllum heterophyllum is still overabundant and a nuisance to fishermen on the lake. Bank fishing in many areas is still impossible and large shallow areas of the lake are so choked that boat travel is impractical.

At the present time the game fish population is able to cope with the gizzard shad and keep this species from over-populating the lake.

Buchanan Lake

Twelve experimental gill nets were used to check the fish population on Lake Buchanan. Six overnight sets were made on August 14 and 15 and six on November 5 and 6, 1958. The results of these netting collections are shown in Table 3.

Netting studies show little change from the original survey. Rough fish made up slightly over 60 percent of total numbers and 66 percent of total weight. The gizzard shad accounted for less than 42 percent of total numbers. Channel catfish were the most abundant game fish, making up 32 percent of total fish taken.

Good fishing continues on Lake Buchanan with channel catfish, white bass, large-mouth bass and white crappie contributing to the creels. Large crappie appeared in the catch for the first time in several years and limit strings of crappie, over one pound in weight, were not uncommon. At present the lake supports a good sport fishery and no drastic management practices are indicated.

Marble Falls Lake

Six overnight gill net sets were made on Lake Marble Falls on October 28 - 29 and one rotenone collection was made on November 25, 1958. In addition, a 100 foot straight seine was used in October in an effort to collect young-of-the-year largemouth black bass following the stocking of 250,000 fry in April.

The net collections continued to indicate a limited fish population in this lake (Table 4). Table 5 shows the average weight of fish/foot of net set to be only half as great as collections from other waters in the district. Throughout the basic survey in 1957 the small size of the fish population in Lake Marble Falls was noted. Rough fish comprised over 70 percent of total numbers and 66 percent of total weight taken. Gizzard shad accounted for over 58 percent of the total numbers and a surprising 27 percent of the total weight.

Channel catfish made up the bulk of the game fish taken, but the average weight was less than one pound. Only one largemouth bass appeared in the net collections and this individual weighed only five ounces.

The rotenone collection was made on a one surface acre slough with an average depth of less than two feet. Dead fish were picked up with dip nets from the surface and a 100 foot straight seine was used to collect those which died and sank to the bottom. Table 6 presents the results of the rotenone collection.

The rotenone collection, like the netting data, show gizzard shad to be the most abundant of the rough fish and the channel catfish the most abundant of the game species. A total of 555 shad were taken from the one acre slough treated with rotenone and, in addition, many small individuals were seen dead but could not be collected and counted.

Seven largemouth bass were taken in the rotenone collection. However, the treated area was one of the few desirable largemouth bass habitats in the lake and its limited occurrence here suggests the population of this species to be at minimal levels. Collections made with the 100 foot straight seine substantiate this conclusion since no largemouth bass were collected, despite efforts to seine the most desirable habitats.

Largemouth bass fishermen favor other lakes in the Highland Chain of lakes and bass fishing on Lake Marble Falls is almost non-existent. The bulk of the sport fishing is for channel catfish and, seasonally, white bass enter the catch.

Further surveys will be conducted on Lake Marble Falls to discover if continued stocking of hatchery-reared largemouth bass will contribute to a population increase and better bass fishing.

Belton Lake

Thirty experimental gill nets were set on Lake Belton during September, 1958, and eight seining collections were made to augment the netting data. A significant change in average weight of crappie was noted in the netting collections and a continued increase in both the numbers and overall weight of gizzard shad.

Two significant changes showed up in the netting sample. One change concerned gizzard shad which showed an increase in relative abundance from less than 13 percent of total fish taken in the period 1953-55 to slightly under 48 percent in 1958. The other change noted was the average weight of individual crappie collected and the apparent increase in numbers. In the 1953-55 survey period, white crappie were collected at the rate of 1.56 fish/foot of net set and individuals averaged 0.90 lbs each. In the 1957 resurvey the average weight of all crappie taken had decreased to 0.58 lbs and the fish/foot of net had increased to 2.30. The 1958 resurvey figures show a catch of 5.44 fish/foot of net and an average weight of 0.26 lbs. The crappie contained both juveniles and mature adults, however, little size difference was noted since mature adults often weighed less than 0.25 lbs. The largest white crappie taken weighed only eight ounces in the 1958 resurvey and compared with 49 individuals which weighed over one pound in the 1954-55 collections. Table 7 presents the results of the 1958 netting collections.

A limited creel census conducted on two occasions during the year revealed only small crappie in the anglers catch with no white crappie over eight ounces recorded.

Because of the increase in numbers and decline in total weight of the crappie population, an amendment was made to the regulations governing bag limits in Bell County, increasing the daily bag limit on crappie from 25 to 50 and the possession limit from 50 to 100. The limit was raised in an attempt to have the surplus crappie harvested, although it is unknown whether fishermen will take advantage of the increased limit.

It is considered doubtful that the crappie taken by hook and line will reduce the population sufficiently to reduce the intraspecific competition enabling individual growth rates to increase.

San Saba River

The San Saba River apparently suffered from the severe floods of 1957. The scouring action of the floods reduced the aquatic vegetation necessary for cover and greatly depleted the game fish population. Table 8 shows the rough fish to make up over 96 percent of total numbers and over 94 percent of total weight.

The data is the result of only four net collections made in January of 1959 but seining made in late 1957 and early 1958 indicated the same overabundance of rough fish species. Thousands of juvenile smallmouth buffalo, gar, shad and carsuckers were taken in seine collections. No young black bass were taken and fewer sunfish than during the original inventory period. The river will be checked more extensively during the coming year to see whether a return to the normal condition of clear water will encourage the game fish species to population levels high enough to support sport fishing. Use of the San Saba River by sportsmen has deteriorated extensively in the past year, and catches by the few anglers utilizing the river have been meager. Channel catfish make up the bulk of the catch with virtually no largemouth bass or crappie taken by anglers.

Little can be done to improve fishing on this stream with present management techniques. If a dam is constructed on the lower river, a total kill - with subsequent restocking - would be recommended. With no check for the ascension of rough fish from the Colorado River into the San Saba, no large-scale management practices are feasible.

Prepared by John E. Tilton
Project Leader

Approved by Marion Toole
Director Inland Fisheries Division

Date April 7, 1959

Table 1. Lake Inks Netting Results, 1958.

Common Name	Number	Percent of Number	Weight (lbs.)	Percent of Weight
Gar	53	5.29	309.31	37.83
Gizzard shad	563	56.18	64.31	7.87
Smallmouth buffalo	19	1.90	57.00	6.97
River carpsucker	62	6.19	137.63	16.83
Carp	10	1.00	13.25	1.62
Gray redbhorse sucker	1	0.10	1.56	0.20
Channel catfish	159	15.86	160.81	19.66
Yellow catfish	4	0.40	27.19	3.32
White bass	40	3.99	26.31	3.22
Largemouth black bass	5	0.50	3.69	0.45
Sunfish (all)	53	5.29	5.38	0.65
White crappie	32	3.20	11.13	1.36
Freshwater drum	1	0.10	0.19	0.02
Totals	1,002	100.00	817.76	100.00

Table 2. Lake Granite Shoals Netting Results, 1958.

Common Name	Number	Percent of Number	Weight (lbs.)	Percent of Weight
Gizzard shad	32	16.49	8.00	4.26
Smallmouth buffalo	56	28.87	106.69	56.78
River carpsucker	18	9.28	24.13	12.84
Golden shiner	1	0.52	0.19	0.11
Channel catfish	14	7.21	24.50	13.04
White bass	11	5.67	5.13	2.73
Largemouth black bass	1	0.52	0.88	0.46
Sunfish (all)	24	12.37	2.19	1.17
White crappie	37	19.07	16.19	8.61
Totals	194	100.00	187.90	100.00

Table 3. Lake Buchanan Netting Results, 1958.

Common Name	Number	Percent of Number	Weight (lbs.)	Percent of Weight
Gar	8	1.45	14.38	3.83
Gizzard shad	231	41.93	55.19	14.73
Smallmouth buffalo	30	5.44	64.94	17.33
River carpsucker	63	11.43	108.31	28.90
Carp	3	0.55	5.44	1.45
Channel catfish	176	31.94	99.94	26.66
Yellow catfish	3	0.54	11.56	3.09
White bass	18	3.27	7.69	2.05
Largemouth black bass	8	1.45	5.13	1.37
Bluegill sunfish	4	0.72	0.94	0.25
Warmouth	6	1.09	0.50	0.14
White crappie	1	0.19	0.75	0.20
Totals	551	100.00	374.77	100.00

Table 4. Lake Marble Falls Netting Results, 1958.

Common Name	Number	Percent of Number	Weight (lbs.)	Percent of Weight
Gar	3	1.43	4.69	4.38
Gizzard shad	123	58.57	28.56	26.70
Smallmouth buffalo	11	5.24	23.56	22.03
River carpsucker	9	4.29	13.63	12.75
Channel catfish	33	15.71	28.81	26.94
White bass	12	5.71	3.50	3.27
Largemouth black bass	1	0.48	0.31	0.29
Bluegill sunfish	9	4.28	0.88	0.83
White crappie	8	3.81	2.81	2.63
Freshwater drum	1	0.48	0.19	0.18
Totals	210	100.00	106.94	100.00

Table 5. Success of Gill Netting in Terms of Number and Pounds of Fish, Resurvey, 1958.

Body of Water	Number of Nets Set	Number of Foot Net Set	Number of Fish Caught	Number lbs. Fish Caught	Average Number Fish/Net	Average No. Fish/ Ft. of Net	Average No. lbs. Fish/Net	Average No. lbs. Fish Per Ft. of Net
Lake Inks	23	2,875	1,002	817.76	43.57	0.348	35.55	0.284
Lake Granite Shoals	5	625	194	187.90	38.80	0.310	37.58	0.300
Lake Buchanan	12	1,500	551	374.77	45.92	0.367	31.23	0.249
Lake Marble Falls	6	750	210	106.94	35.00	0.280	17.82	0.142
Lake Belton	30	3,750	1,288	568.33	42.93	0.343	18.94	0.151
San Saba River	4	500	268	529.32	67.00	0.536	132.33	1.058
Totals	80	10,000	3,513	2,585.02	-----	-----	-----	-----

Table 6. Lake Marble Falls Rotenone Results, 1958.

Common Name	Number	Percent of Number	Weight (lbs.)	Percent of Weight
Gar	1	0.13	0.38	0.28
Gizzard shad	555	75.61	68.63	51.08
Smallmouth buffalo	1	0.14	2.88	2.15
River carpsucker	1	0.14	0.94	0.70
Channel catfish	105	14.31	50.06	37.27
Largemouth black bass	7	0.95	4.63	3.44
Warmouth	6	0.82	0.50	0.38
Sunfish (all)	40	5.45	1.88	1.40
White crappie	7	0.95	1.31	0.97
Freshwater drum	11	1.50	3.13	2.33
Totals	734	100.00	134.34	100.00

Table 7. Lake Belton Netting Results, September, 1958.

Common Name	Number	Percent of Number	Weight (lbs.)	Percent of Weight
Spotted gar	38	2.95	34.16	6.01
Longnose gar	24	1.86	19.74	3.47
Gizzard shad	612	47.51	83.61	14.71
Smallmouth buffalo	101	7.85	131.81	23.19
River carpsucker	25	1.94	33.55	5.91
Gray redbhorse sucker	1	0.07	1.56	0.27
European carp	26	2.02	13.04	2.30
Channel catfish	138	10.72	168.23	29.60
White bass	23	1.78	11.69	2.05
Largemouth black bass	15	1.17	9.97	1.76
Warmouth bass	1	0.08	0.12	0.02
Redear sunfish	1	0.07	0.18	0.03
Bluegill sunfish	73	5.67	7.05	1.24
Green sunfish	4	0.31	0.55	0.10
White crappie	204	15.84	52.26	9.19
Freshwater drum	2	0.16	0.81	0.15
Totals	1,288	100.00	568.33	100.00

Table 8. San Saba River Netting Results, 1958.

Common Name	Number	Percent of Number	Weight (lbs.)	Percent of Weight
Gar	191	71.27	443.63	83.82
Gizzard shad	56	20.90	34.25	6.47
Smallmouth buffalo	4	1.49	13.81	2.60
River carpsucker	8	2.98	9.50	1.79
Channel catfish	5	1.87	8.25	1.56
Yellow catfish	1	0.37	19.50	3.68
White crappie	3	1.12	0.38	0.08
Totals	268	100.00	529.32	100.00